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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte DAVID CHONG LIM, HUN KWANG LEE,
HOWARD ALLEN, and STEPHEN MARTIN

Appeal 2009-009355
Application 10/664,982
Technology Center 2800

Before ROBERT E. NAPPI, CARLA M. KRIVAK, and
THOMAS S. HAHN, *Administrative Patent Judges*.

HAHN, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants invoke our review under 35 U.S.C. § 134(a) from the final rejection of claims 1, 4, 5, and 8. We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

STATEMENT OF THE CASE

Appellants claim a packaging process for an integrated circuit(s) die and a die containing package. The package has a substrate including first contacts connected to electrically conductive runs that proceed under the die. The first contacts are located adjacent a first side of the die and there are second contacts that are located adjacent an opposite side of the die.¹ Claim 1 is illustrative:

1. A die containing package comprising:
 - a die defining electrical die contacts, the die contacts arranged along a first and an opposite side of the die,
 - a substrate defining first substrate contacts,
 - flattened electrical conductive balls attached to the die contacts and making electrical connection thereto,
 - electrical conductive runs on the substrate that run substantially under the die connecting the first substrate contacts, wherein the first substrate contacts are located adjacent to the first side of the die, to second substrate contacts, wherein the second substrate contacts are located adjacent to the opposite side of the die, electrically conductive wires with first ends making electrical connections to the first substrate contacts, wherein the wires are formed to run substantially parallel to the surface of the die, and wherein the other ends are horizontally attached to the flattened balls.

¹ See generally Spec. 2:15-29; 4:22–5:31; Figs. 1-5, 7.

Rejection

The Examiner relies upon the following evidence:²

Shim	US 6,531,784 B1	Mar. 11, 2003
Kang	US 2003/0178710 A1	Sep. 25, 2003

The Examiner rejected claims 1, 4, 5, and 8, under 35 U.S.C. § 103(a), as being unpatentable over Shim and Kang (Final Action 2-5).

Appellants' Contention

Appellants contend the Examiner erred in concluding that Shim teaches or suggests the following limitation that is recited in independent claims 1 and 5:

electrical conductive runs on the substrate that run substantially under the die connecting the first substrate contacts, wherein the first substrate contacts are located adjacent to the first side of the die, to second substrate contacts, wherein the second substrate contacts are located adjacent to the opposite side of the die
(App. Br. 6-7).

Issue

Does Shim, under § 103(a), teach or suggest electrical conductive runs on a substrate and electrical contacts as recited in independent claims 1 and 5?

PRINCIPLES OF LAW

Examined claims are interpreted as broadly as is reasonable using ordinary and accustomed term meanings so as to be consistent with the specification, *In re Thrift*, 298 F.3d 1357, 1364 (Fed. Cir. 2002), while

² Effective filing dates for the cited evidence precede Appellants' earliest effective filing date and are not at issue.

“taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by the written description contained in the applicant’s specification,” *In re Morris*, 127 F.3d 1048, 1054 (Fed. Cir. 1997), and without reading limitations from examples given in the specification into the claims, *In re Zletz*, 893 F.2d 319, 321-22 (Fed. Cir. 1989). Further, no embodiment appearing in the written description may be read into a claim when the claim language is broader than the embodiment. *SuperGuide Corp., v. DirecTV Enters., Inc.*, 358 F.3d 870, 875 (Fed. Cir. 2004).

ANALYSIS

Appellants contend that Shim fails to teach or suggest a limitation (*see supra*) recited in the independent claims 1 and 5 (App. Br. 6). As such, Appellants effectively argue claim 1 and rely on those arguments to contend patentability for independent claim 5 and also dependent claims 4 and 8 (App. Br. 7-10). Accordingly, we select claim 1 as representative pursuant to the authority provided in 37 C.F.R. § 41.37 (c)(1)(vii).

Appellants argue that the Examiner misunderstood Shim, which according to Appellants does not teach or suggest electrical conductive runs that go under a die with connected contacts on opposite sides of the die (App. Br. 7). The Examiner disagrees that Shim fails to teach the disputed limitation and cites to Shim Figures 1 and 9 with identified findings (Ans. 6-7).

Based on our review of the record, we agree with the Examiner. For example, we find the disputed structural limitation taught in Shim Figures 1 and 2, which are reproduced below.

Shim Figure 2 Showing a Cross-Sectional, Side Elevation View of the Semiconductor Package Shown in Figure 1, as Revealed by the Section Taken along Lines II-II (col. 2, ll. 49-52).

Appellants argue:

See Shim's FIG. 1 where all the leads from the chip 14 connect 26 to a substrate 12 and to vias 30 through to solder balls 18. Please note that none of the runs travel under the die 14 to contacts adjacent to the other side of the die, as the claim limitation requires. Note that all the contacts shown for the IC's 14 and 16 (See FIGs. 1-3) are connected to pads 26 and to runs that DO NOT travel under the die.

(App. Br. 8 (emphasis omitted)). Not convinced by Appellants' argument, the Examiner, instead, finds and concludes that: "Shim (e.g. fig. 9) shows electrical conductive runs 24 on the substrate 30 that run substantially under the die 14 connecting the first and second substrate contacts 22" (Ans. 6-7). Appellants continue in the argument with the conclusory assertion that "[t]he references do not show runs under the chip" (Reply Br. 4).

Based on our review of the record, including Shim's Figures 1 and 2 and the written disclosures at column 3, lines 46-53, which are cited by Appellants, we find, as does the Examiner, that conductive layers 24 "run substantially under the [Shim] die 14" (Ans. 6-7). Appellants have not identified evidence that narrows the recited "electrical conductive runs . . . run[ning] substantially under the die" from the ordinary and accustomed meanings for the terms "under the die." Accordingly, we conclude from applying a reasonably broad interpretation to the limitation that Shim's taught conductive layer 24 structure on substrate 12 in going under die 14 (*see* Figs. 2, 9) renders the disputed limitation obvious. *Thrift*, 298 F.3d at 1364.

Appellants also argue that their invention permits “die-up” and “die-down” packaging (App. Br. 10-11; Reply Br. 4) and, therefore, the cited prior art does not anticipate or render their “invention” obvious. We are not persuaded by these arguments because they are not commensurate with the scope of the claims. Embodiments appearing in the written description may not be read into a claim when the claim language is broader than the embodiment. *SuperGuide*, 358 F.3d at 875.

For the foregoing reasons, we sustain the rejection of representative claim 1 and also the rejection of claims 4, 5, and 8.

ORDER

The Examiner’s decision rejecting claims 1, 4, 5, and 8 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(v).

AFFIRMED

babc